UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/826,035	04/04/2001	Robert J. Devins	BUR920000154US1	3793

			EXAMINER
7590	07/07/2004		NGHIEM, MICHAEL P

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ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 07/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sh et with the correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _16 June 2004_.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-21_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-20_ is/are rejected.

7)☒ Claim(s) _21_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

The Amendment filed on June 16, 2004 has been acknowledged.

Claim Objections

1.   Claims 2, 6, 7, 9, 11, 13, 14, 17, 19, and 21 are objected to because of the following informalities:

- "external interface" should be – internal interface--. Fig. 1 shows that the core (101) has an interface (SOC INTERFACE) being **internal** to the design (100). It is noted that the mirror interface (101M) is external to the design (101).

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Devins et al.

(US 6,539,522).

Regarding claims 1, 6, 7, 11, 13, 15, 17, and 18, Devins et al. discloses a verification

test bench system and method (Figs. 1, 8-10) used in testing in a core (processor core,

e.g. 112, column 13, line 5) which is used in a design (203) which comprises:

- a bus functional model (900) which comprises a mirror interface to the core

(900 emulates processor core, column 13, lines 10-14) and memory (memory is

inherently required for storing and executing 901, column 13, lines 25-28);

- a bi-directional general purpose I/O device (1007, 1008);

- a control mechanism (TOS 200) which comprises:

- a standardized handshake protocol between the design and the mirror

interface (handshake interface between BFM 900 and 203, Fig. 9);

- control code loaded into the bus functional model that controls data

flow, transfer direction, and data checking when a test case is running in the design

(column 13, lines 21-37).

Regarding claims 2, 8, 9, 14, 19, and 20, Devins et al. discloses that said core has an

interface (interface of 203 to 900) to said design (Fig. 9), said mirror interface is coupled

to said interface (900 and 203 are coupled by their respective interfaces), and said test

case issues directives in said handshake protocol to initiate and control an exchange of

data between said mirror interface and interface (via 200, 900, column 13, lines 26-28,

Fig. 9).

Regarding claims 3 and 16, Devins et al. discloses that said bi-directional general

purpose I/O device is coupled between said design and said bus functional model, and

transfers said directives between said design and said bus functional model (1007,

1008 is between 100 and 1005, Fig. 10b).

Regarding claims 4, 10, 12, 18, and 20, Devins et al. discloses that said control code

responds to said directives by configuring said mirror interface for said exchange of data

(Fig. 9 shows 900 being "configured" to exchange data).

Regarding claim 5, Devins et al. discloses that said control code verifies results of said

exchange of data (column 13, lines 34-37).

Regarding claim 6, Devins et al. further discloses a test case executing in said SOC (via

200, 900) which applies verification stimuli to said interface using said control

mechanism (column 13, lines 22-25).

Regarding claim 17, Devins et al. further discloses a program product (TOS) tangibly

embodied on a computer-usable medium (e.g. workstation, column 12, lines 67 –

column 13, line 1), said program product comprising computer-executable instructions

(column 12, lines 43-47, lines 55-57) which when executed implement a process.

Allowable Subject Matter

3.   Claim 21 would be allowable if rewritten or amended to overcome the objection set forth in this Office action.

Reasons for Allowance

4.   The combination as claimed wherein a system for verifying an external interface of a core of a system on a chip (SOC) comprising an external bi-directional general purpose I/O connected to said SOC to transfer control directives to configure the mirror interface through the bus functional interface for a given test case (claim 21) is not disclosed, suggested, or made obvious by the prior art of record.

Response to Arguments

5.   Applicant's arguments filed on June 16, 2004 have been fully considered but they are not persuasive.

Applicants did not respond to the claim objections.

With respect to the 35 USC 102 rejections, Applicants argue that Devins does not describe a mirror interface which is configured during test through an external bi-directional general purpose I/O.

Examiner's position is that Devins discloses a bus functional model (900) which comprises a mirror interface to the core (900 emulates processor core, column 13, lines 10-14) and a bi-directional general purpose I/O device (1007, 1008) as claimed.

Applicants further argue that Devins does not describe that the mirror interface uses the bus functional interface to control data flow through the mirror interface and external interface of the system on chip (SOC).

Examiner's position is that Devins discloses a control mechanism (TOS 200) which comprises a standardized handshake protocol between the design and the mirror interface (handshake interface between BFM 900 and 203, Fig. 9) and control code loaded into the bus functional model that controls data flow, transfer direction, and data checking when a test case is running in the design (column 13, lines 21-37) as claimed.

Applicants further argue that Devins does not disclose an external bi-directional general purpose I/O which configures the mirror interface from control directives received from the system on a chip (SOC) during a test case as recited in claim 1.

Examiner's position is that the bi-directional general purpose I/O of claim 1 is not recited to "configure the mirror interface from control directives received from the system on a chip (SOC) during a test case". Nevertheless, Devins discloses a bi-directional general purpose I/O device (1007, 1008).

Conclusion

6.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of

time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Contact Information

7.   Any inquiry concerning this communication or earlier communications from

the examiner should be directed to Michael Nghiem whose telephone number is (571)

272-2277. The examiner can normally be reached on M-H from 6:30AM – 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John Barlow can be reached at (571) 272-2269. The fax phone numbers for

the organization where this application or proceeding is assigned are (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is (703) 308-

0956.

MICHAEL NGHIEM
PRIMARY EXAMINER

Michael Nghiem

July 5, 2004